

## **REMARKS**

### **I. Introduction**

With the cancellation without prejudice of claim 12, claims 9 to 11 and 13 to 17 are pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that the present application is in condition for immediate allowance, and reconsideration is respectfully requested.

### **II. Objection to Claim 14**

Regarding the objection to claim 14, the Examiner will note that the term "structure" in claims 14 and 15 has been changed to --raised pattern--, thereby obviating the objection. Support for this amendment may be found, for example, in Figures 2a, 2b and 2c, as well as on page 6, lines 21 to 28 of the Specification. Accordingly, withdrawal of this objection is respectfully requested.

### **III. Rejection of Claims 9 to 12, 14 and 17 Under 35 U.S.C. § 103(a)**

Claims 9 to 12, 14 and 17 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of PCT Application Publication No. WO 2004/097392 ("Berger et al.") and U.S. Patent No. 4,916,384 ("Ishida"). It is respectfully submitted that the combination of Berger et al. and Ishida does not render these claims unpatentable for at least the following reasons.

Claim 9 relates to a sensor for determining a concentration of particles in gases, including: at least one substrate element; a first measuring electrode; and a second measuring electrode. There is a measuring area between the first measuring electrode and the second measuring electrode, and the first and second measuring electrodes are arranged so that by applying a voltage between the measuring electrodes an asymmetric electric field is formed on the measuring area.

Although Applicants may not agree with the merits of the rejection, to facilitate matters, claim 9 has been amended to essentially incorporate the features of claim 12, claim 12 has been canceled without prejudice and claims 13 and 14 have been amended to change their dependencies from claim 12 to claim 9. Claim 9 as amended recites, in relevant part, that **the first and second measuring electrodes each include finger electrodes that are interdigitated to form an interdigital comb structure**, and that **at least one of the measuring electrodes includes finger electrodes having varying widths**.

Neither Berger et al. nor Ishida discloses, or even suggests, that at least one measuring electrode of a sensor for determining the concentration of particles in gases includes interdigitated finger electrodes having varying widths. Berger et al. does describe a sensor (1) for detecting particles in a gas stream, the sensor (1) having comb electrodes (12, 13) that include interdigitated fingers (see Fig. 1 of Berger et al.). However, **as is apparent from Fig. 1 of Berger et al., the width of the finger portions of comb electrodes (12, 13) remains constant, and thus, does not vary.** Ishida, in turn, describes an apparatus for measuring soot particles contained in the exhaust gas of a diesel engine, the measuring apparatus (A) including a frustoconical anode (13) and a needle-shaped cathode (12). However, the apparatus of Ishida does not include interdigitated finger electrodes of varying widths and, therefore, does not cure the deficiencies of Berger et al. with respect to at least the above-mentioned features. Accordingly, it is respectfully submitted that the combination of Berger et al. and Ishida does not render claim 9 unpatentable for at least these reasons.

As mentioned above, claim 12 has been canceled without prejudice, thereby rendering moot the rejection with respect to this claim.

As for claims 10, 11, 14 and 17, which depend from claim 9 and therefore include all of the features of claim 9, it is respectfully submitted that the combination of Berger et al. and Ishida does not render these dependent claims unpatentable for at least the reasons set forth above.

Regarding claim 14, it is respectfully submitted that the combination of Berger et al. and Ishida does not render this claim unpatentable for the following additional reasons. Neither Berger et al., nor Ishida discloses, or even suggests, the feature of claim 14 that at least one measuring electrode has one of (i) a raised pattern along a side facing the other measuring electrode, and (ii) a raised pattern along the finger electrodes. As is apparent from Fig. 1 of Berger et al., neither of comb electrodes (12, 13) has a raised pattern along a side facing the other comb electrode or a raised pattern along finger portions of the respective comb electrode. In addition, Ishida does not cure the deficiencies of Berger et al. with respect to the above-mentioned feature. Accordingly, it is respectfully submitted that the combination of Berger et al. and Ishida does not render claim 14 unpatentable for these additional reasons.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

#### **IV. Rejection of Claims 13 and 15 Under 35 U.S.C. § 103(a)**

Claims 13 and 15 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Berger et al., Ishida and U.S. Patent No. 5,858,192 (“Becker et al.”). It is respectfully submitted that the combination of Berger et al., Ishida and Becker et al. does not render these claims unpatentable for at least the following reasons.

Claims 13 and 15 ultimately depend from claim 9 and therefore include all of the features of claim 9. As set forth in detail in Section III of this response, neither Berger et al., nor Ishida discloses, or even suggests, at least the feature of claim 9 that at least one of the measuring electrodes of a sensor for determining the concentration of particles in gases includes interdigitated finger electrodes having varying widths. Becker et al. describes an electrode array or arrays (5) including spaced electrode elements wound around each other to form a spiral shape (see Fig. 2B) or other shapes (see column 4, lines 10 to 12). In addition, the electrode elements may or may not be parallel to each other (see column 4, lines 12 to 15; column 20, lines 13 to 14), and may be interdigitated (see column 4, lines 15 to 17). However, Becker et al. nowhere mentions interdigitated finger electrodes having varying widths. Therefore, Becker et al. does not cure the deficiencies of Berger et al. and Ishida with respect to at least the above-mentioned feature. Accordingly, it is respectfully submitted that the combination of Berger et al., Ishida and Becker et al. does not render unpatentable claims 13 and 15, which depend from claim 9.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

#### **V. Rejection of Claim 16 Under 35 U.S.C. § 103(a)**

Claim 16 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Berger et al., Ishida and U.S. Patent No. 6,634,210 (“Bosch et al.”). It is respectfully submitted that the combination of Berger et al., Ishida and Bosch et al. does not render this claim unpatentable for at least the following reasons.

Claim 16 depends from claim 9 and therefore includes all of the features of claim 9. As set forth above, neither Berger et al., nor Ishida et al. discloses, or even suggests, all of the features of claim 9. In addition, Bosch et al. is neither relied upon for disclosing or suggesting, nor does Bosch et al. disclose or

suggest, all of the features of claim 9 not disclosed or suggested by the combination of Berger et al. and Ishida. Accordingly, it is respectfully submitted that the combination of Berger et al., Ishida and Bosch et al. does not render unpatentable claim 16, which depends from claim 9.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

**VI. Conclusion**

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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